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     (FILE 'HOME' ENTERED AT 09:32:22 ON 11 SEP 2003)

     FILE 'INSPEC' ENTERED AT 09:32:31 ON 11 SEP 2003
L1           772 ETCHSTOP OR ETCH-STOP
L2           782 ETCH(A)STOP
L3           798 L1 OR L2
L4         14226 GAN
L5          3123 ALGAN OR GAALN
L6             1 L5 AND L3

     FILE 'STNGUIDE' ENTERED AT 09:37:25 ON 11 SEP 2003

     FILE 'CA' ENTERED AT 09:37:35 ON 11 SEP 2003
L7             7 L6
L8             7 L7
L9             7 L7

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=> etch(a)stop
         18921 ETCH
         13677 STOP
L2         782 ETCH(A)STOP

=> l1 or l2
L3         798 L1 OR L2

=> gan
L4       14226 GAN

=> algan or gaaln
          3061 ALGAN
            86 GAALN
L5        3123 ALGAN OR GAALN

=> l5 and l3
L6            1 L5 AND L3

=> d l6 1 all

L6   ANSWER 1 OF 1  INSPEC  (C) 2003 IEE on STN
AN   2001:6984299  INSPEC     DN  A2001-16-8160C-028; B2001-08-2550E-056
TI   In situ dry etch monitoring for GaN/AlGaN based device
     structures.
AU   Lacroix, Y.; Nakanishi, T.; Sakai, S. (Satellite Venture Bus. Lab.,
     Tokushima Univ., Japan)
SO   Proceedings of International Workshop on Nitride Semiconductors
     Tokyo, Japan: Inst. Pure & Appl. Phys, 2000. p.782-5 of 1002 pp. 2 refs.
     Conference: Nagoya, Japan, 24-27 Sept 2000
     Sponsor(s): Japan Soc. Appl. Phys.; Japan Soc. Promotion of Sci
     ISBN: 4-900526-13-4
DT   Conference Article
TC   Experimental; Practical
CY   Japan
LA   English
AB   By monitoring the light emitted during reactive ion etching (RIE) from the
     etched atoms in the plasma above the wafer, it is shown that it is
     possible to reliably determine the etch stop time for
     conventional GaN-based laser diodes and other device structures. The
     technique is based on in situ monitoring of emissions from electronic
     transitions of Ga and other etched atoms from layers of different
     AlxInyGa1-x-yN compositions. For layers containing more aluminum, the etch
     rate is reduced and hence is the density of etched atoms in the plasma,
     resulting in a traceable drop in the signal intensity.
CC   A8160C Surface treatment and degradation in semiconductor technology;
     A5275R Plasma applications in manufacturing and materials processing;
     A4255P Lasing action in semiconductors; B2550E Surface treatment
     (semiconductor technology); B4320J Semiconductor lasers; B4260D Light
     emitting diodes
CT   ALUMINIUM COMPOUNDS; GALLIUM COMPOUNDS; III-V SEMICONDUCTORS; INDIUM
     COMPOUNDS; LIGHT EMITTING DIODES; SEMICONDUCTOR LASERS; SPUTTER ETCHING;
     WIDE BAND GAP SEMICONDUCTORS
ST   GaN/InGaN/AlGaN based laser diode structure; GaN/AlGaN
     based LED structure; in situ dry etch monitoring; light emission;
     reactive ion etching; RIE; etched atoms density; etch stop time;
     electronic transitions; varied AlxInyGa1-x-yN compositions; aluminium;
     etch rate; signal intensity; plasma processing; GaN-AlGaN;
     GaN-InGaN-AlGaN
CHI  GaN-AlGaN int, AlGaN int, GaN int, Al int, Ga int, N int, AlGaN ss, Al ss,
     Ga ss, N ss, GaN bin, Ga bin, N bin; GaN-InGaN-AlGaN int, AlGaN int, InGaN
     int, GaN int, Al int, Ga int, In int, N int, AlGaN ss, InGaN ss, Al ss, Ga
     ss, In ss, N ss, GaN bin, Ga bin, N bin
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ET In; Ga*N; GaN; Ga cp; cp; N cp; Al*Ga*N; Al sy 3; sy 3; Ga sy 3; N sy 3; AlGaN; Al cp; Ga; Al*Ga*In*N; Al sy 4; sy 4; Ga sy 4; In sy 4; N sy 4; AlxInyGa1-x-yN; In cp; V; Ga*In*N; In sy 3; InGaN; GaN-AlGaN; GaN-InGaN-AlGaN; Al

L7 ANSWER 1 OF 7 CA COPYRIGHT 2003 ACS on STN
AN 138:197144 CA
TI Method for forming Group III nitride materials for semiconductor devices
IN Sasaoka, Chiaki
PA NEC Corporation, Japan
SO U.S. Pat. Appl. Publ., 25 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM H01L021-00
ICS H01S005-00; H01L033-00
NCL 257102000; 372045000; 372046000; 257101000; 257103000; 257096000; 438022000; 438037000
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 75
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003042496	A1	20030306	US 2002-231163	20020830
	JP 2003078215	A2	20030314	JP 2001-265854	20010903
	CN 1404192	A	20030319	CN 2002-132249	20020903
PRAI	JP 2001-265854	A	20010903		

AB The invention relates to a method for forming Group III nitride materials for semiconductor devices. The device includes a partially etched nitride-based compd. semiconductor crystal layer, which is formed by the steps of (i) forming a non-crystal layer of a nitride-based compd. semiconductor; (ii) etching at least a part of the non-crystal layer to form a partially etched non-crystal layer; and (iii) crystg. the partially etched non-crystal layer to form a partially etched nitride-based compd. semiconductor crystal layer.
ST group IIIA nitride semiconductor device
IT Etching masks
(**etch stop**; method for forming Group III nitride materials for semiconductor devices)
IT Phosphates, processes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(etchant; method for forming Group III nitride materials for semiconductor devices)
IT Cladding
Doping
Electric contacts
Etching
Metalorganic vapor phase epitaxy
Semiconductor films
(method for forming Group III nitride materials for semiconductor devices)
IT Oxides (inorganic), uses
RL: TEM (Technical or engineered material use); USES (Uses)
(method for forming Group III nitride materials for semiconductor devices)
IT Etching
(selective; method for forming Group III nitride materials for semiconductor devices)
IT Group IIIA element nitrides
RL: TEM (Technical or engineered material use); USES (Uses)
(semiconductor materials; method for forming Group III nitride materials for semiconductor devices)
IT Oxidation
(surface; method for forming Group III nitride materials for semiconductor devices)
IT Crystallization

(thermally induced; method for forming Group III nitride materials for semiconductor devices)

IT 125297-45-2P, Aluminum gallium nitride (Al0.2Ga0.8N) 162688-39-3P, Gallium indium nitride (Ga0.99In0.01N)
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(barrier layer; method for forming Group III nitride materials for semiconductor devices)

IT 1284-72-6, Bis(cyclopentadienyl) magnesium 7803-62-5, Silane, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(dopant source; method for forming Group III nitride materials for semiconductor devices)

IT 7439-95-4, Magnesium, uses 7440-21-3, Silicon, uses
RL: MOA (Modifier or additive use); USES (Uses)
(dopant; method for forming Group III nitride materials for semiconductor devices)

IT 7782-44-7, Oxygen, processes
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(dopant; method for forming Group III nitride materials for semiconductor devices)

IT 7631-86-9, Silica, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(etching mask; method for forming Group III nitride materials for semiconductor devices)

IT 110759-40-5P, Aluminum gallium nitride (Al0.1Ga0.9N) 157308-78-6P, Gallium indium nitride (Ga0.85In0.15N)
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(semiconductor material; method for forming Group III nitride materials for semiconductor devices)

IT 25617-97-4, Gallium nitride (GaN) 106097-44-3, Aluminum gallium nitride (**AlGaN**) 127575-65-9, Aluminum gallium indium nitride (AlGaInN)
RL: TEM (Technical or engineered material use); USES (Uses)
(semiconductor material; method for forming Group III nitride materials for semiconductor devices)

IT 24304-00-5, Aluminum nitride
RL: TEM (Technical or engineered material use); USES (Uses)
(semiconductor materials; method for forming Group III nitride materials for semiconductor devices)

IT 75-24-1, Trimethylaluminum 1445-79-0, Trimethylgallium 3385-78-2, Trimethylindium 7664-41-7, Ammonia, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(vapor deposition precursor; method for forming Group III nitride materials for semiconductor devices)

L7 ANSWER 2 OF 7 CA COPYRIGHT 2003 ACS on STN
AN 137:286139 CA
TI Semiconductor laser devices
IN Hasegawa, Yoshiaki; Otsuka, Nobuyuki
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01S005-343
ICS H01L021-205
CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002299768	A2	20021011	JP 2001-98653	20010330

PRAI JP 2001-98653 20010330
AB The devices comprise: a sapphire substrate; an n-GaN buffer layer; an n-GaN contact layer having an n shoulder electrode; and an n-**AlGaN** cladding, an n-GaN guide, a GaInN/GaN MQW active, a p-**AlGaN** cap, a p-GaN guide, a p-**AlGaN** 1st cladding,a p-**AlGaN** **etch stop**, a p-**AlGaN** 2nd cladding, a p-GaN contact and a p electrode layer.
ST aluminum gallium indium nitride laser
IT Etching
Quantum well devices
Quantum well heterojunctions
Semiconductor lasers
(semiconductor laser devices)
IT 1344-28-1, Aluminum oxide (Al2O3), uses 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-32-6, Titanium, uses 7440-57-5, Gold, uses 7631-86-9, Silica, uses 25617-97-4, Gallium nitride (GaN) 106097-44-3, Aluminum gallium nitride (**AlGaN**) 110584-43-5, Aluminum gallium nitride al0.07ga0.93n 120994-23-2, Gallium indium nitride (GaInN) 132238-81-4, Gallium indium nitride (Ga0.9In0.1N) 136756-15-5, Aluminum gallium nitride al0.15ga0.85n
RL: DEV (Device component use); USES (Uses)
(semiconductor laser devices)

L7 ANSWER 3 OF 7 CA COPYRIGHT 2003 ACS on STN
AN 134:11296 CA
TI Nitride semiconductor laser devices and manufacture
IN Sugawara, Takashi; Kidoguchi, Isao; Suzuki, Masakatsu; Miyanaga, Yoshiko; Kume, Masahiro; Mizuchi, Kiminori; Ban, Yusaburo
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01L033-00
CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000332290	A2	20001130	JP 1999-139717	19990520

PRAI JP 1999-139717 19990520
AB The devices comprise: (1) a sapphire substrate; (2) an n-GaN buffer layer; (3) an n-GaN contact layer with an n shoulder electrode; and (4) an n-**AlGaN** cladding, (6) an n-GaN guide, (7) a GaInN-QW/GaN-barrier MQW active, (8) a p-GaN guide, (9) a p-**AlGaN** 1st cladding, (10) a p-GaN **etch stop**, (11) a p-**AlGaN** 2nd cladding, (12) a p-GaN contact and (13) a p electrode, where (13)-(11) and (12)-(4) form a 1st and a 2nd mesa stripe, resp., formed using a Ta and a Pt etch mask and a pyrophosphoric acid as an etchant.
ST gallium indium nitride MQW mesa laser; aluminum gallium nitride MQW mesa laser
IT Etching
Etching masks
Quantum well devices
Quantum well heterojunctions
Semiconductor lasers
(nitride semiconductor laser devices and manuf.)
IT 25617-97-4, Gallium nitride (GaN) 110584-43-5, Aluminum gallium nitride al0.07ga0.93n 124088-93-3, Gallium indium nitride ga0.8in0.2n
RL: DEV (Device component use); USES (Uses)
(nitride semiconductor laser devices and manuf.)
IT 2466-09-3, Pyrophosphoric acid

RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(nitride semiconductor laser devices and manuf.)
IT 7440-06-4, Platinum, uses 7440-25-7, Tantalum, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(nitride semiconductor laser devices and manuf.)

L7 ANSWER 4 OF 7 CA COPYRIGHT 2003 ACS on STN
AN 133:215299 CA
TI Gallium nitride type semiconductor laser devices and manufacture
IN Okumura, Toshiyuki
PA Sharp Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01S005-323
ICS H01L033-00
CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000252589	A2	20000914	JP 1999-52074	19990301
PRAI	JP 1999-52074		19990301		

AB The devices comprise: an n electrode; an n-GaN substrate; an n-GaN buffer, an n-GaInN crack prevention, an n-**AlGaN** cladding, an n-GaN guide, a GaInN MQW active, a p-**AlGaN** vaporization prevention, a p-GaN guide, a p-**AlGaN** 1st cladding, and a p-GaInN **etch stop** layer; a p-**AlGaN** 2nd cladding ridge stripe layer; a p-GaN contact layer formed on the ridge; a p electrode; and a SiO2 current confinement layer, where the angle between the stripe and the laser resonance axis is 90.degree..+-. 0.3.degree.; and the full width at half height of the laser beam is < 3 .mu.m.
ST aluminum gallium nitride ridge stripe laser; indium gallium nitride ridge stripe laser
IT Cavity resonators
Laser cladding
Quantum well devices
Quantum well heterojunctions
(gallium nitride type semiconductor laser devices and manuf.)
IT 1317-82-4, Sapphire 7631-86-9, Silica, uses 25617-97-4, Gallium nitride 110759-40-5, Aluminum gallium nitride al0.1ga0.9n 125297-45-2, Aluminum gallium nitride al0.2ga0.8n 132238-81-4, Gallium indium nitride ga0.9in0.1n 157308-78-6, Gallium indium nitride ga0.85in0.15n 161117-55-1, Gallium indium nitride ga0.97in0.03n
RL: DEV (Device component use); USES (Uses)
(gallium nitride type semiconductor laser devices and manuf.)

L7 ANSWER 5 OF 7 CA COPYRIGHT 2003 ACS on STN
AN 131:25562 CA
TI Semiconductor light-emitting devices and manufacture thereof
IN Tamamura, Koji
PA Sony Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01S003-18
ICS H01L033-00
CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11168257	A2	19990622	JP 1997-332840	19971203
PRAI	JP 1997-332840		19971203		

AB The devices comprise: an n-GaAs substrate; an n-GaAs buffer layer; an n-GaAs contact layer with an n electrode thereon; an n-**AlGaN** cladding, an n-GaN light guide, a GaInN MQW active, a p-GaN light guide, a p-**AlGaN** cladding, and a p-GaN **etch stop** layer; an inverted mesa comprising a p-GaN contact and a p electrode layer; an AlN and an n-GaN current block layer burying the mesa laterally; and a SiNx protective layer.

ST gallium indium nitride MQW mesa laser; aluminum gallium nitride MQW mesa laser; laser mesa gallium nitride MQW

IT 1344-28-1, Aluminum oxide (Al2O3), uses 12033-89-5, Silicon nitride, uses 24304-00-5, Aluminum nitride (AlN) 25617-97-4, Gallium nitride (GaN) 106097-44-3, Aluminum gallium nitride (**AlGaN**) 109371-84-8, Silicon nitride (Si0-1N0-1) 157308-78-6, Gallium indium nitride ga0.85in0.15n 162250-20-6, Gallium indium nitride ga0.98in0.02n
RL: DEV (Device component use); USES (Uses)
(semiconductor light-emitting buried mesa DH devices and manuf.)

L7 ANSWER 6 OF 7 CA COPYRIGHT 2003 ACS on STN
AN 130:73627 CA
TI Semiconductor light-emitting elements
IN Takahashi, Takashi
PA Ricoh Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01S003-18
ICS H01L033-00
CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10326940	A2	19981208	JP 1997-150292	19970523
PRAI	JP 1997-150292		19970523		

AB A side-up LED comprises: a sapphire substrate; an n-GaN buffer layer; an n-GaN contact layer; an n-**AlGaN** cladding layer; an GaInN active layer; a AlGaInN **etch-stop** layer; and a ridge stripe comprising a p-**AlGaN** clading and a p-GaN contact layer.

ST gallium indium nitride DH LED

IT Electroluminescent devices
(semiconductor light-emitting elements)

IT 25617-97-4, Gallium nitride (GaN) 106097-44-3, Aluminum gallium nitride (**AlGaN**) 120994-23-2, Gallium indium nitride (GaInN) 127575-65-9, Aluminum gallium indium nitride (AlGaInN) 136756-15-5, Aluminum gallium nitride al0.15ga0.85n 153281-80-2, Gallium indium nitride (Ga0.95In0.05N) 210430-42-5, Gallium nitride phosphide 217948-26-0, Aluminum gallium indium nitride (Al0.33Ga0.6In0.07N) 217948-30-6, Aluminum indium nitride (Al0.82In0.18N)
RL: DEV (Device component use); USES (Uses)
(semiconductor light-emitting elements)

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